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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,708	07/03/2003	Donald Lewis Cripps	16424-US	5046

7590 03/29/2005

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Moline, IL 61265-8098

EXAMINER

CHIN, GARY

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/613,708

Applicant(s)

CRIPPS, DONALD LEWIS

Examiner

Gary Chin

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/3/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claims 1-2, 8-12, 14, 16 and 19-21 objected to because of the following informalities:

As per claims 1 and 11, both on line 2, “a mechanical arm” should be “the mechanical arm” respectively in order to avoid the antecedent basis problem. Similarly, on line 3 of claim 1, “mechanical arm” should be “the mechanical arm”.

As per claims 2 and 12, both on line 2, “corrective force” should be “the corrective force” respectively in order to avoid the antecedent basis problem.

As per claim 8, lines 4-5, “the determined hydraulic flow rates” should be “the converted hydraulic flow rates” to be consistent.

As per claims 9 and 10, both on line 2, after “error feedback”, the phrase “is said step of applying” should be inserted respectively in order to establish the correlation between the error feedback and the step of applying the corrective force. Further, the antecedent basis for “the hydraulic flow rate” and “the at least one joint” in claim 8 and “the control signal” and “the at least one actuator” in claim 9 has not been set forth in these claims.

As per claim 14, line 10, “a second actuator” should be “the second actuator”.

As per claim 16, lines 1-2, “a data storage” should be “the data storage”.

As per claim 19, lines 5-6, “the determined hydraulic flow rate” should be “the applied hydraulic flow rate” to be consistent.

As per claim 20, lines 3-4, “the hydraulic flow rate” should be “a hydraulic flow rate” to avoid the antecedent basis problem.

As per claim 21, it is unclear as to what "control signal to at least one actuator" is the claim directed to.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 8-11 and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Bach et al (patent no. 5257177).

As per claims 1 and 11, figures 1, 3 and columns 10-13 of the Bach et al reference clearly disclose the claimed method as well as system for controlling a mechanical arm (item 1 or 2) including a storage device (item 20) for storing a desired path of the mechanical arm, a position sensor (col. 10, lines 12-14) for measuring an actual path segment of an actual path of the mechanical arm, an error determination module (see R1-R3 in fig. 1) for determining an error between the measured actual path segment and the desired path and a path correction module (V1-V3 in fig. 1) for applying a correction force to the mechanical arm based upon the determined error.

As per claims 8 and 19, the claimed feature of using a control signal to at least one actuator to achieve the hydraulic flow rates for at least one hydraulic member is taught in column 10, lines 5-6, 61-68 and column 11, lines 1-14 of the Bach et al reference.

As per claims 9-10 and 20-21, the claimed "error feedback" feature is clearly taught in figure 5 of the Bach et al reference.

As per claim 22, the claimed target planning module is shown in items 19-20, figure 1, of the Bach et al reference.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-7 and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bach et al (patent no. 5257177).

As per claims 2-4 and 12-14, it is noted that the claimed orthogonal corrective vector and a progress vector as the corrective force have not been specifically disclosed in the Bach et al reference. However, it would have been readily apparent for one skilled in the art that the corrective forces provided to the drive units (m1-M3) in Bach et al obviously are comprising the corrective forces in any directions including the orthogonal and progress vectors as claimed.

As per claims 5 and 15-16, it would have been readily apparent for one skilled in the art that the desired path stored in the memory (item 20) of the Bach et al system can be selected based upon any selection criterions including the criterion which based upon the closest approximation between the operator input and the available desired path or based upon the mechanical arm encountering an obstruction in the actual path as claimed.

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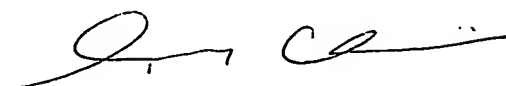
As per claims 6-7 and 17-18, it is noted that position measurement and position vector are employed in the Bach et al reference, instead of the claimed position versus time (velocity) measurement and velocity vector as claimed, to determine the actual path segment and deviation respectively. However, it has been well recognized by one skilled in the art at the time the invention was made that either position or velocity sensor can be routinely employed to derive the position data since the position data can be derived either directly from the position sensor or indirectly by simply integrating the velocity data from the velocity sensor.

6. The additional references are cited to show the related systems. Applicant should consider them carefully when responding to the current office action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary Chin whose telephone number is (703) 305-9751. The examiner can normally be reached on Monday-Friday 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



GARY CHIN
PRIMARY EXAMINER